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Application No. 10/573,888
Amendment dated December 10, 2007
Reply to Office Action of September 12, 2007

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Docket No.: 80250(302741)

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended) An optical functional waveguide comprising:
a substrate;
a clad formed on said substrate;
a core which is formed in said clad and serves as an optical path;
a plurality of groove structures formed so as to align at a predetermined interval along the optical path and fragmentize the optical path and being filled with a material having a refractive index temperature coefficient different from that of said core; and
a heater electrode interposed between said plurality of groove structures provided along the optical path in an alternating S-shaped arrangement.

Claim 2 (previously presented) An optical functional waveguide according to claim 1, wherein said plurality of groove structures are lens-shaped:

Claim 3 (previously presented) An optical functional waveguide according to claim 1, wherein at least one of the end faces of said plurality of groove structures is tilted from a position perpendicular to the optical path.

Claim 4 (original) An optical modulator comprising the optical functional waveguide according to claim 1 and modulating amplitude or phase of light.

Claim 5 (original) An arrayed waveguide grating comprising the optical functional waveguide according to claim 2 in a slab waveguide.

Claim 6 (original) A dispersion compensation circuit comprising the optical functional waveguide according to claim 2 in the vicinity of a coupling portion that two arrayed waveguide gratings are coupled to each other in a cascade.

Claim 7 (original) A dispersion compensation circuit comprising:
a mirror provided in a waveguide and arranged in the vicinity of a spectrum plane; and
the optical functional waveguide according to claim 2 arranged in the vicinity of said mirror.

Claim 8 (canceled)

Claim 9 (original) An optical functional waveguide according to claim 2, wherein said groove structure is provided at a slab waveguide side of a coupling portion of the slab waveguide and a single mode waveguide.

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Claim 10 (previously presented) An optical functional waveguide according to claim 1, wherein said plurality of groove structures are wedge-shaped.

Claim 11 (new) An optical functional waveguide comprising:
a substrate;
a clad formed on said substrate;
a core which is formed in said clad and serves as an optical path;
a plurality of groove structures formed so as to align at a predetermined interval along the optical path and fragmentize the optical path and being filled with a material having a refractive index temperature coefficient different from that of said core; and
a heater electrode means interposed between said plurality of groove structures provided along the optical path for controlling temperature of said material.